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EXAMINER
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KING, JOSHUA

ART UNIT	PAPER NUMBER
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2828

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08/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/584,507

Applicant(s)

PIETRA ET AL.

Examiner

Joshua J. King

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-30 is/are pending in the application.
- 4a) Of the above claim(s) 22-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 06/23/2006, 03/28/2007.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group 1 (claims 16-21) in the reply filed on July 31, 2007 is acknowledged. The traversal is on the ground(s) that a) the two groups have a single inventive concept b) there is no burden on the examiner to search these two groups. This is not found persuasive because the two groups lack a single inventive concept and while not a requirement of PCT Rule 13 also place an undue burden on the examiner. The instant application is the national stage (filed under 35 U.S.C 371) of PCT/EP03/14917. Chapter 800 of the MPEP is directed to the restriction practice of the office with regard to applications filed under 35 U.S.C. 111(a) (please see MPEP 1893.03(d)). While the two groups do place an undue burden on the examiner since two separate classification searches must be made a lack of unity requirement does not require a burden be placed on the examiner. Lack of unity only requires that there is no common "special technical feature". A "special technical feature" are those features, which define a contribution over the prior art. The examiner has provided evidence in previous actions, which shows that the common features to the claims are disclosed in the prior art and as such cannot be considered "special technical features". Please see MPEP 801 introduction and 1893.03(d) for the distinction between restriction practices for those applications filed under 35 U.S.C. 111(a) and 35 U.S.C. 371.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 22-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on July 31, 2007.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 16, 17 and 21 rejected under 35 U.S.C. 102(b) as being anticipated by Rosenblatt (U.S. Patent Number 5,337,183).
5. Rosenblatt discloses:
- **With respect to claim 16**, an external-cavity tunable laser system configured to emit radiation at a laser emission wavelength (Fig. 5 element 50), comprising an external cavity having a plurality of cavity modes, said external cavity comprising (column 8 lines 55-56): a gain medium to emit an optical beam into the external cavity (Fig. 5 element 11); and a tunable optical resonant grating filter reflecting the optical beam at a resonant wavelength, said filter comprising (Fig. 5 element 50): a diffraction grating (Fig. 5 element 56); a planar waveguide optically interacting with said diffraction grating (Fig. 5 element 59 and column 2 lines 40-42 and column 8 line 63), the diffraction grating and the planar waveguide forming a resonant structure (column 9 lines 6-22); and a light transmissive

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material having a selectively variable refractive index to permit tuning of the filter (column 9 lines 6-8), said light transmissive material forming a tunable cladding layer for the planar waveguide (Fig. 5 element 60), wherein the planar waveguide is placed between the diffraction grating and the tunable cladding layer (Fig. 5 elements 60, 59, and 56). It should be noted that column 9 lines 6-22 specifically discloses the index of refraction changing in the core. However, due to the set up shown in Fig. 5 the electric field is also applied to the cladding layer (Fig. 5 element 60), which means the index of refraction in the cladding layer also changes. The examiner has also provided further evidence that changing the index of refraction of the cladding layer to tune the device is well known.

- **With respect to claim 17**, wherein the emitted radiation is on a single longitudinal mode (Fig. 5 element 63).
- **With respect to claim 21**, wherein the tunable resonant grating filter is arranged in the external cavity so that the optical beam impinges on the filter substantially perpendicular to a main surface of the planar waveguide (Fig. 5 element 11).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friesem et al. (U.S. Patent Number 6,215,928) in view of Dudovich et al. (Active

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Semiconductor-Based Grating Waveguide Structures). This rejection is used as further evidence that tuning the cladding layers index of refraction is extremely well known in the art.

8. Friesem et al. discloses:

- **With respect to claim 16**, an external-cavity tunable laser system configured to emit radiation at a laser emission wavelength (column 4 lines 37-51), comprising an external cavity having a plurality of cavity modes, said external cavity comprising (column 3 lines 54-62): a gain medium to emit an optical beam into the external cavity (Fig. 2 element 40); and a tunable optical resonant grating filter reflecting the optical beam at a resonant wavelength, said filter comprising (Fig. 2): a diffraction grating (Fig. 2 element grating); a planar waveguide optically interacting with said diffraction grating (Fig. 2 element waveguide), the diffraction grating and the planar waveguide forming a resonant structure (column 5 lines 12-24); and a light transmissive material having an electric field placed across it (Fig. 2 element substrate and column 4 lines 20-34), said light transmissive material forming a tunable cladding layer for the planar waveguide (Fig. 2 element substrate), wherein the planar waveguide is placed between the diffraction grating and the tunable cladding layer (Fig. 2 elements substrate, waveguide, and grating). It should be noted that "a cladding layer" is any layer, which has a smaller index of refraction than the waveguide layer.

- **With respect to claim 21**, wherein the tunable resonant grating filter is arranged in the external cavity so that the optical beam impinges on the filter substantially perpendicular to a main surface of the planar waveguide (Fig. 2 element 40).
9. Friesem et al. does not disclose:
- **With respect to claim 16**, the index of refraction changes in the cladding layer.
10. However Dudovich et al. discloses:
- **With respect to claim 16**, the index of refraction changes in the cladding layer (page 1 column 2 lines 1-5). The advantage is to adjust the wavelength of the laser (page 1 column 2 lines 1-5).
11. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device disclosed by Friesem et al. with adjusting the refractive index of the cladding layer as disclosed by Dudovich et al. in order to adjust the wavelength of the laser.
12. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenblatt (U.S. Patent Number 5,337,183) in view of Tuganov et al. (U.S. Pre-Grant Publication 2003/0012237).
13. Rosenblatt discloses:
- **With respect to claim 19**, the distributed resonant cavity light beam modulator used for optical addressing (column 12 line 53).
14. Rosenblatt does not explicitly disclose:

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- **With respect to claim 18**, further comprising a channel- allocation grid element arranged in the external cavity to define a plurality of pass bands substantially aligned with corresponding channels of a selected wavelength grid.
- **With respect to claim 20**, wherein the selected wavelength grid has a channel spacing of 50 GHz or 25 GHz.

15. However, Tuganov et al. discloses:

- **With respect to claim 18**, further comprising a channel- allocation grid element arranged in the external cavity to define a plurality of pass bands substantially aligned with corresponding channels of a selected wavelength grid ([0006]). The advantage is to allow the device to be used in optical communication devices ([0001]).
- **With respect to claim 20**, wherein the selected wavelength grid has a channel spacing of 50 GHz or 25 GHz ([0001]).

16. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the device disclosed by Rosenblatt with the etalon as disclosed by Tuganov et al. in order to use the device in optical communication devices.

### **Conclusion**

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cavanaugh et al. (U.S. Patent Number 7,009,680) see Fig. 2. Wang (U.S. Patent Number 7,013,064) see Fig. 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua J. King whose telephone number is 571-270-1441. The examiner can normally be reached on Mon.-Thurs. 10:00-7:30 and other Fri. 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJK 08/08/2207

MINSUN OH HARVEY  
PRIMARY EXAMINER